



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/045,559

01/11/2002

Michael G. Fitzpatrick

RSW920010160US1

1823

7590

09/01/2006

Jerry W. Herndon

IBM Corporation T81/503

PO Box 12195

Research Triangle Park, NC 27709

EXAMINER

NG, CHRISTINE Y

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 09/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/045,559

Applicant(s)

FITZPATRICK ET AL.

Examiner

Christine Ng

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In lines 5-9: It is unclear what is meant by "selected ones of the received packets at a network layer" (line 7). It is unclear how the packets are received at a network layer when it is shown in Figure 4 that the that packets are received from DLC-in 230 via line 425, which is at the data link layer. It is also unclear what is meant by "other ones of the received packets" (line 8). It is unclear what is the difference between the "selected ones of the received packets" and the "other ones of the received packets". This is not disclosed in the specification.

In lines 10-18: It is unclear what is meant by "a first-processed one of the packets" (lines 12-13). It is also unclear what is meant by "subsequently-processed ones of the packets" (lines 16-17). It is unclear what is the relationship between the "selected ones of the received packets", "other ones of the received packets", "a first-processed one of the packets", and "subsequently-processed ones of the packets". This is not disclosed in the specification.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,049,834 to Khabradar et al in view of U.S. Patent No. 6,948,003 to Newman et al.

Referring to claims 2, 8 and 12, Khabradar et al disclose a method of data transfer in a communications network, the method comprising:

Routing packets of the traffic (Figure 1, from ports 12-1 to 12-N), further comprising:

Intercepting packets of the traffic at a data link layer (Figure 1, using L2 forwarding table) of a communications protocol stack.

Comparing (Figure 4, step 57) a destination address (Figure 2, MAC DA 22) of each intercepted packet to entries in a data link layer routing table (Figure 3, L2 forwarding table) comprising at least one entry (42a - 42f), each entry specifying an input data link layer component, output data link layer component pair (MAC SA 45, MAC DA 49), to determine if a matching entry is present in the table, the matching entry specifying a data link layer component (input port for a certain source) on which the intercepted packet arrived as the input data link layer component (MAC SA 45) of the pair and the destination address of the intercepted packet as the output data link layer

component (output port for a certain destination) of the pair (MAC DA 49). The destination address of the packet is compared (Figure 4, step 57) to entries in the L2 forwarding table to see if it is an address of a router. The source address of the packet is then checked (Figure 4, step 58) to see if it is present in the forwarding table. Refer to Column 3, line 28 to Column 4, line 20.

Forwarding (Figure 4, steps 59 and 61) the intercepted packet to a higher layer (Figure 3, using L3 shortcut table) of the communications protocol stack if the matching entry is not found, for routing by the higher layer. If the destination address of the packet is a router (and thus, a matching entry is not found), the packet is forwarded using the L3 shortcut table of the network layer. Refer to Column 4, lines 10-20.

Performing (Figure 4; steps 58, 60, 62, 64, 66, 68, 70 and 72) data link layer routing of the intercepted packet, without intervention of the higher layer, if the matching entry is found. If the destination address of the packet is not a router, the packet is forwarded to all ports except the port of entry (step 64), filtered (step 70), or forwarded to a specified port (step 72), which is all done by the L2 forwarding table of the data link layer. Refer to Column 3, line 48 to Column 4, line 10.

Khabradar et al do not disclose providing a concentrator that combines traffic from a plurality of virtual servers operating in a single physical device into a single outbound stream.

Newman et al disclose in Figure 3 a private virtual server system 300 that includes a concentrator (multiplexer/demultiplexer 350) that combines traffic from a virtual servers 362a, 362b and 362c for transmission across local/regional network 340.

Art Unit: 2616

The multiplexing/demultiplexing mechanism 350 performs the function of “merging multiple separate communication streams onto a single physical communications medium.” The virtual servers 362a, 362b and 362c operate in a single physical server 360. Refer to Column 4, lines 32-53 and Column 8, lines 55-65. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include providing a concentrator that combines traffic from a plurality of virtual servers operating in a single physical device into a single outbound stream. One would be motivated to do so since Khabardar et al do not disclose a source to provide data to the ports 12-1 to 12-N; a virtual server is a source to provide data to the ports for further routing through the network. A concentrator is necessary to combine data from a plurality of virtual servers for transmission to a port of the router for entrance to the network.

Referring to claims 3, 9 and 13, Khabradar et al disclose that the step of performing data link layer routing further comprises the steps of:

Replacing an inbound packet header of the intercepted packet with an outbound packet header using information from the matching entry, thereby creating a modified packet header.

Forwarding the intercepted packet using the modified packet header. When the layer 2 destination address is that of a router, and a layer 3 address match is found in the layer 3 shortcut table, “the switch must rewrite the packet source and destination layer 2 addresses, and then forward the packet to the port shown in column 50...”. Refer to Column 4, lines 10-20. Refer also to Figure 5d and Column 5, lines 56-67.

Referring to claims 4, 10 and 14, Khabradar et al disclose in Figure 3 that the entries in the data link layer routing table are dynamically learned and further comprising: adding a new entry to the table for each of the intercepted packets for which the matching entry is not found and for which the data link layer component (input port for a certain source) on which the intercepted packet arrived and the output data link layer component (output port for a certain destination) that matches the destination address of the intercepted packet are both supported (only entries that can be routed by the data link layer are included in the L2 forwarding table; otherwise, the entries are included in the L3 shortcut table), the new entry specifying the data link layer component on which the intercepted packet arrived as the input data link layer component of the pair (MAC SA 45) and the output data link layer component that matches the destination address of the intercepted packet as the output data link layer component of the pair (MAC DA 49). Upon receiving packets: "If the source address is not known to the switch, or it is associated with a port of entry which is no longer current, it is added or updated in step 60." (Column 3, lines 58-61). Also, changes in network topology are accommodated by updating entries in the forwarding table. Refer to Column 5, lines 1-10. As shown in Figure 3, each entry 42a - 42f is associated with a MAC SA 45 and a MAC DA 49. Refer to Column 3, lines 28-47.

Referring to claims 5, 11 and 15, Khabradar et al do not disclose that at least one of the virtual servers is an application servers.

Newman et al disclose in Figure 3 a private virtual server system 300 that includes a plurality of virtual servers 362a, 362b and 362c. Refer to Column 8, lines 22-

Art Unit: 2616

65. The virtual servers 362a, 362b and 362c are application servers since they are part of the private virtual server system 300, and an example of a service provider is an Application Service Provider. Refer to Column 2, lines 12-20. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that at least one of the virtual servers is an application servers. One would be motivated to do so in order to provide application services to users.

Referring to claim 6, Khabradar et al do not disclose that the virtual servers each operate in a logical partition within the single physical device.

Newman et al disclose in Figure 3 that each of the virtual servers 362a, 362b and 362c operate in a logical partition within physical server 360. Refer to Column 8, lines 44-54. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the virtual servers each operate in a logical partition within the single physical device. One would be motivated to do so in order to provide a plurality of logical virtual servers within a single server; thereby allowing the virtual servers to share the resources of the network.

Referring to claim 7, Khabradar et al disclose in Figure 3 that the method further comprises the step of deleting selected entries from the data link layer routing table (L2 forwarding table) when the selected entries become obsolete. "With the passage of time, entries are periodically deleted from the forwarding table, starting with the oldest entries." (Column 5, lines 2-4).



***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C. Ng   
August 11, 2006



HUY D. VU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600